

NIF Capsule Design Update*

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We describe several ignition capsule designs, for use in the National Ignition Facility. We will compare these designs for ablator efficiency, ignition margin, implosion and stability performance. This study includes capsule designs driven by x-ray drive profiles with both 300 eV and 250 eV peak temperatures. All of the 300 eV designs are tuned to implode the DT fuel in a nearly identical manner. Capsule designs consist of an ablator material (CH with Br dopant; Be with Cu dopant; and B₄C) encasing a layer of solid DT. The dopants alter material opacities sufficiently to 1) shield the DT fuel from preheat effects; and 2) develop an ablation front density profile favorable to implosion stability. B₄C has sufficient opacity at 300 eV that a dopant is not necessary. Issues relating to material properties and fabrication will be described.

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